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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|--|-------------|----------------------|---------------------------------|-----------------------------|
| 10/580,267 | 05/25/2006 | Hans Rausing | 0104-0575PUS1 | 2577 |
| 2292 7590 01/29/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747 | | | EXAMINER WALBERG, TERESA J | |
| | | | ART UNIT 3744 | PAPER NUMBER |
| | | | NOTIFICATION DATE 01/29/2008 | DELIVERY MODE ELECTRONIC |

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary

Application No.

10/580,267

Applicant(s)

RAUSING, HANS

Examiner

Teresa J. Walberg

Art Unit

3744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 May 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 1/11/08.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3-6, 8, 10-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brost (2005/0039899).

Brost discloses a heat exchanger plate (Fig. 7) including a number of turbulence promoting protuberances (18) which project from the plane of the heat exchanger plate, the protuberances having a surface profile for promoting break-up of laminar boundary layers (Figs. 3 and 4), the protuberances being symmetrically arranged (Fig. 7), the surface profile having a depth that is smaller than the depth of the protuberances (Figs. 3 and 4), the surface profile being concavely or convexly arranged relative to the protuberances (Fig. 7), the heat exchanger plates being arranged in pairs with the protuberances directed away from each other and in which pairs of plates a gap is arranged between the first and the second plate (Fig. 6). While Brost does not teach making the surface profile of spherical or ellipsoid segments, it would have been obvious to one of ordinary skill in the art to give the profile portions any desired shape, based on the exact flow profile desired.

3. Claims 2 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brost (2005/0039899) in view of Harrison et al (6,260,830).

Brost discloses a heat exchanger plate having the claimed structure with the exception of the heat exchanger plates being stackable in such a manner the protuberances in a first heat exchanger plate are partially accommodated in the protuberances in a second heat exchanger plate. Harrison et al discloses arranging heat exchanger plates such that the protuberances in a first heat exchanger plate are partially accommodated in the protuberances in a second heat exchanger plate (see embodiment of Fig. 16). It would have been obvious to one of ordinary skill in the art in view of Harrison et al to arrange the plates of Brost to partially accommodate the protuberances of a first heat exchanger plate in the protuberances of a second heat exchanger plate, based on the flow pattern desired.

4. Claims 7 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brost (2005/0039899) in view of Dalzell (2,281,754).

Brost discloses a heat exchanger plate having the claimed structure with the exception of the surface profile together with the protuberances forming a golf ball like structure. Dalzell discloses heat exchanger plates having hemispherical protrusions. It would have been obvious to one of ordinary skill in the art in view of Dalzell to make the protrusions of Brost in a hemispherical shape, based on the flow pattern desired. Note that the term "golf-ball-like structure" is interpreted

to require a hemispherical protrusion having surface patterning of some sort. If applicant considers the exact type and arrangement of surface patterning to be critical, he may wish to present amendments clarifying the structure intended to be covered by the term "golf-ball-like".

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Samy et al and Matsushima are cited to show heat exchanger structure.


6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Teresa J. Walberg whose telephone number is 571-272-4790. The examiner can normally be reached on M-F 8:00 - 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cheryl Tyler can be reached on 571-272-4834. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


Teresa J. Walberg
Primary Examiner
Art Unit 3744

/tw/